Lake Okeechobee Allocation Issues

- Supply-Side Management Agricultural Water Supply Allocations
- Caloosahatchee River Chloride Concentrations
- Stormwater Treatment Areas Water Needs

Lake Okeechobee Supply Side Management

- Current SSM “rationing” policy assumes…
  - average dry season rains
  - limited regional storage - low lake levels
- Record low dry season rainfall
- Increased agricultural water demands
- LOSA agricultural uses are receiving only a small fraction of their actual supplemental irrigation demand under SSM

SSM Dry Season Outlook

- Current allocation is less than 30% of demand because present SSM Protocol assumes average dry season rainfall
- Over the next three months, agricultural demand will continue to increase if rainfall remains below average
- Adjustments to lower the reference level have been made to mitigate for the record low seasonal rainfall
- Periodic assessments of the SSM allocation will continue to be made as the dry season progresses.

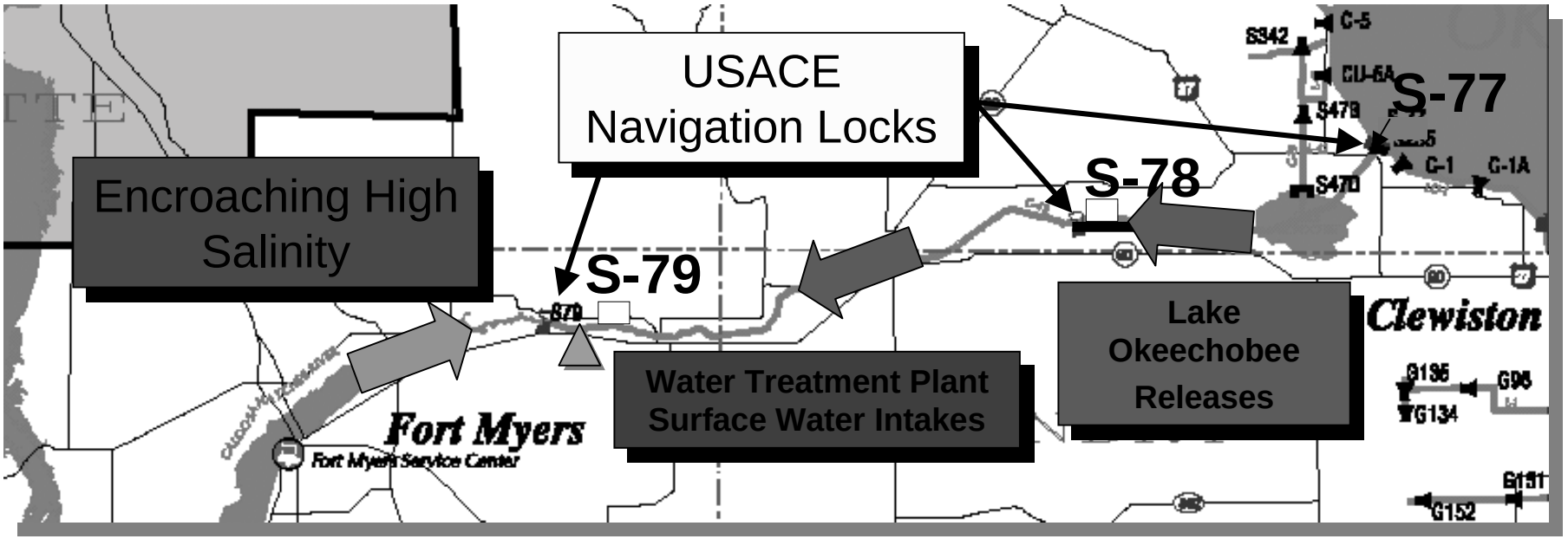
SSM Wet Season Outlook

- Options to increase wet season water availability may need to be considered
  - Wet Season SSM protocol
  - Cloud-Seeding
  - Backpumping
  - Floridan wells
  - Other alternative sources
- Detailed discussion of these issues is proposed during the April Governing Board meetings

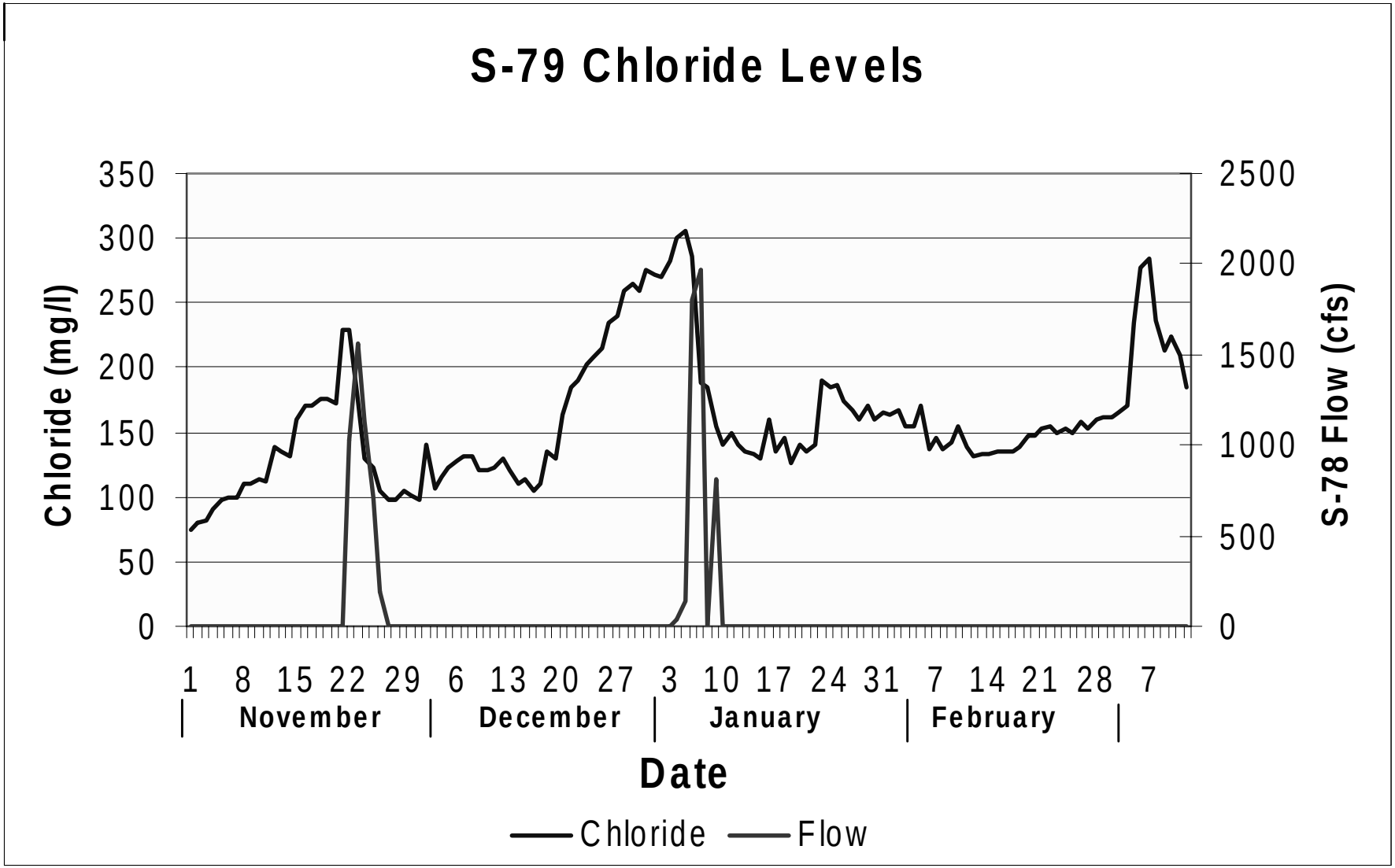
Caloosahatchee Chlorides

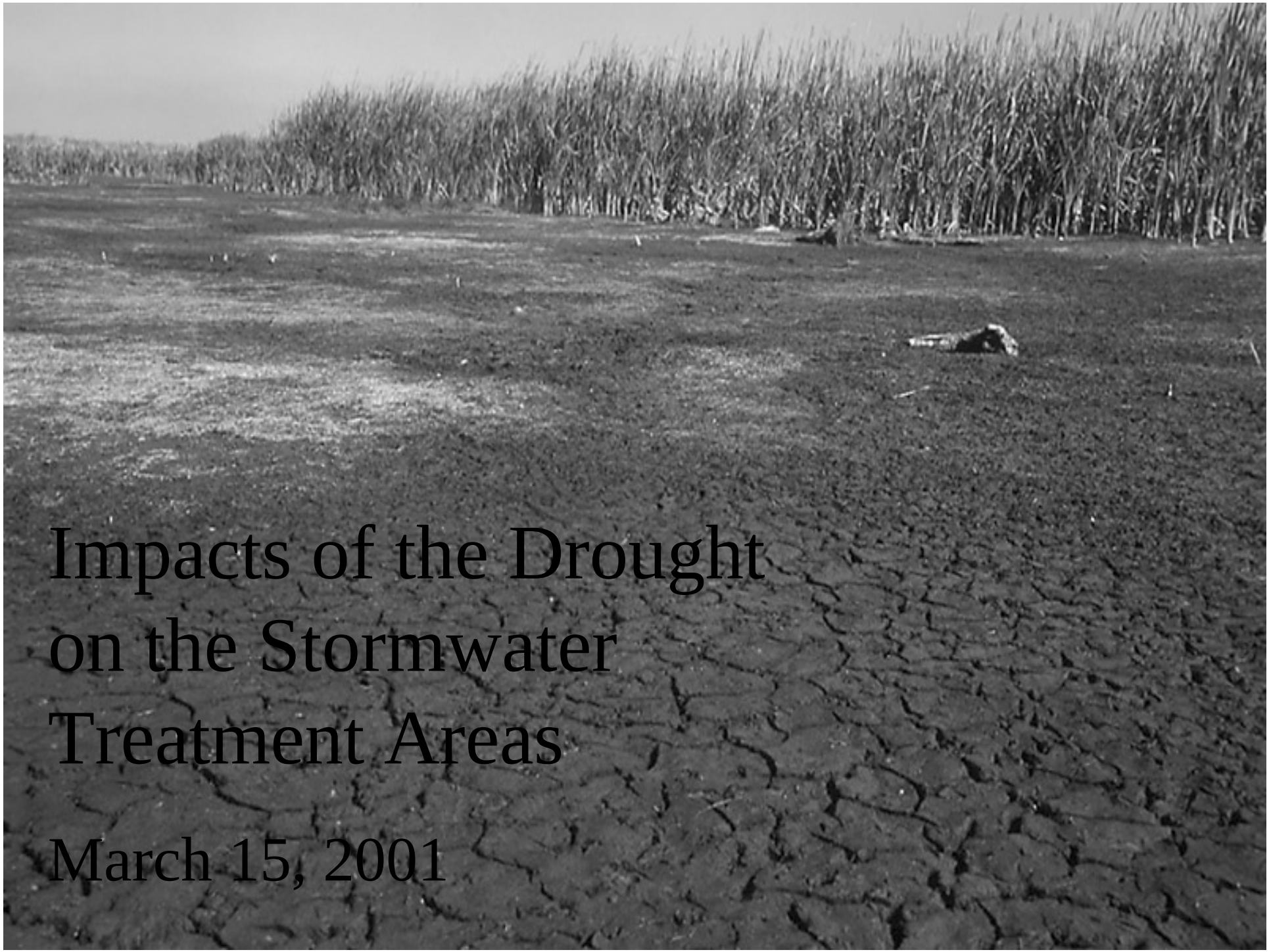
- Chloride levels at the Ft. Myers and Lee County Utilities potable water intakes on the Caloosahatchee River peaked quickly last week but have stabilized over the past few days
- At District request, USACE has restricted scheduled navigation lockages by half to reduce the continuing increase in Chloride concentrations
- Low Lake Okeechobee stages have significantly reduced the potential effectiveness of releases intended to further lower salinities

Caloosahatchee River



- In periods of low flow, salt water intrusion threatens public water systems of Lee Co. and Ft. Myers


S-79 Chloride Levels
Chloride (mg/l)
350
300
250
200
150
100
50
0
2500
2000
1500
1000
500
0
S-78 Flow (cfs)
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21 28 7
November
December
January
February
Date
Chloride
Flow



Impacts of the Drought on the Stormwater Treatment Areas

March 15, 2001

Impacts of the Drought on the STAs

- Biological impacts
- Phosphorus impacts
- Economic impacts
- Projections of water needs

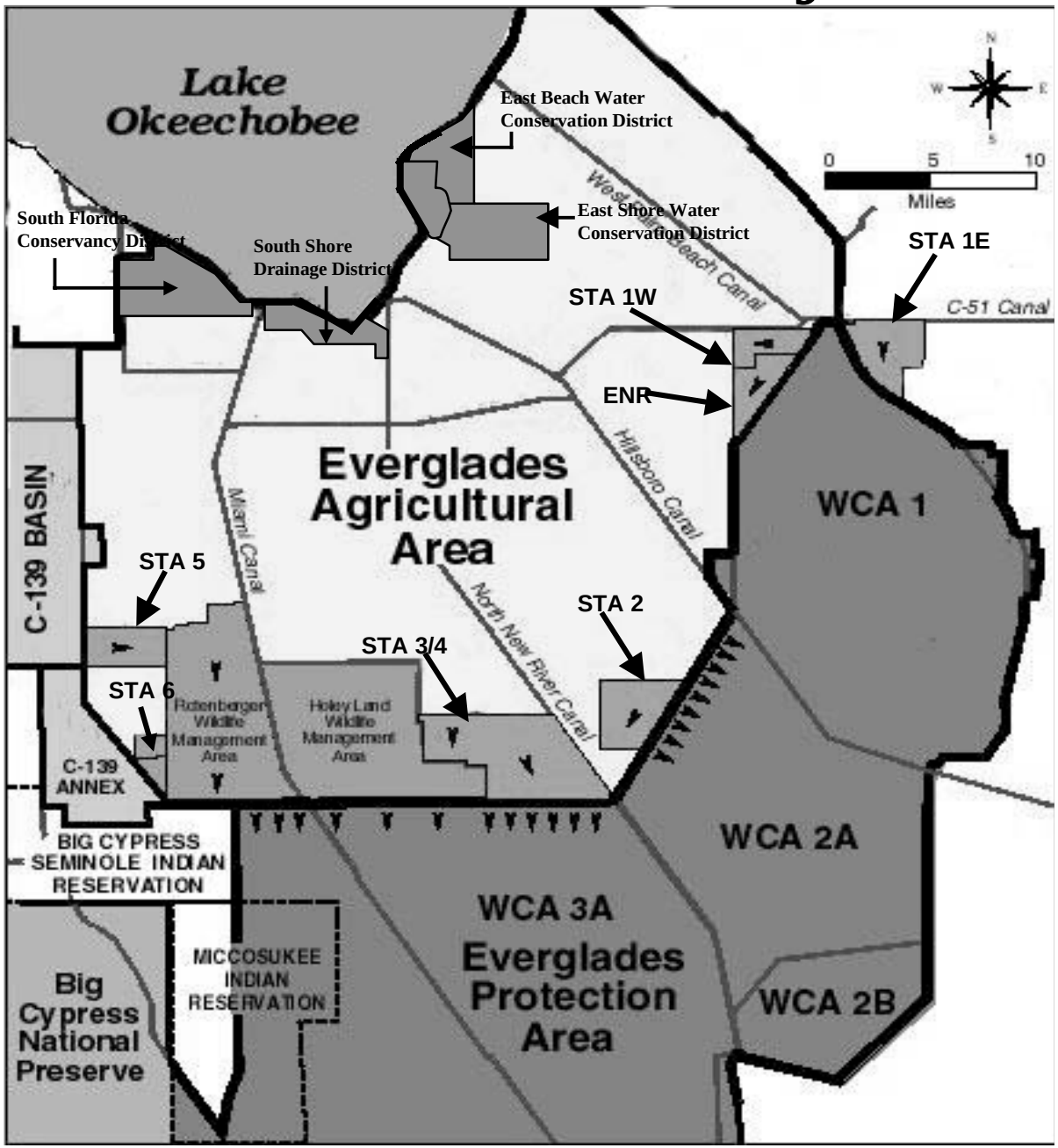
Everglades Construction Project

Completed:

STA-1W	***6670 acres***
STA-2	***6430 acres***
STA-5	***4118 acres***
STA-6	***870 acres***

Under construction:

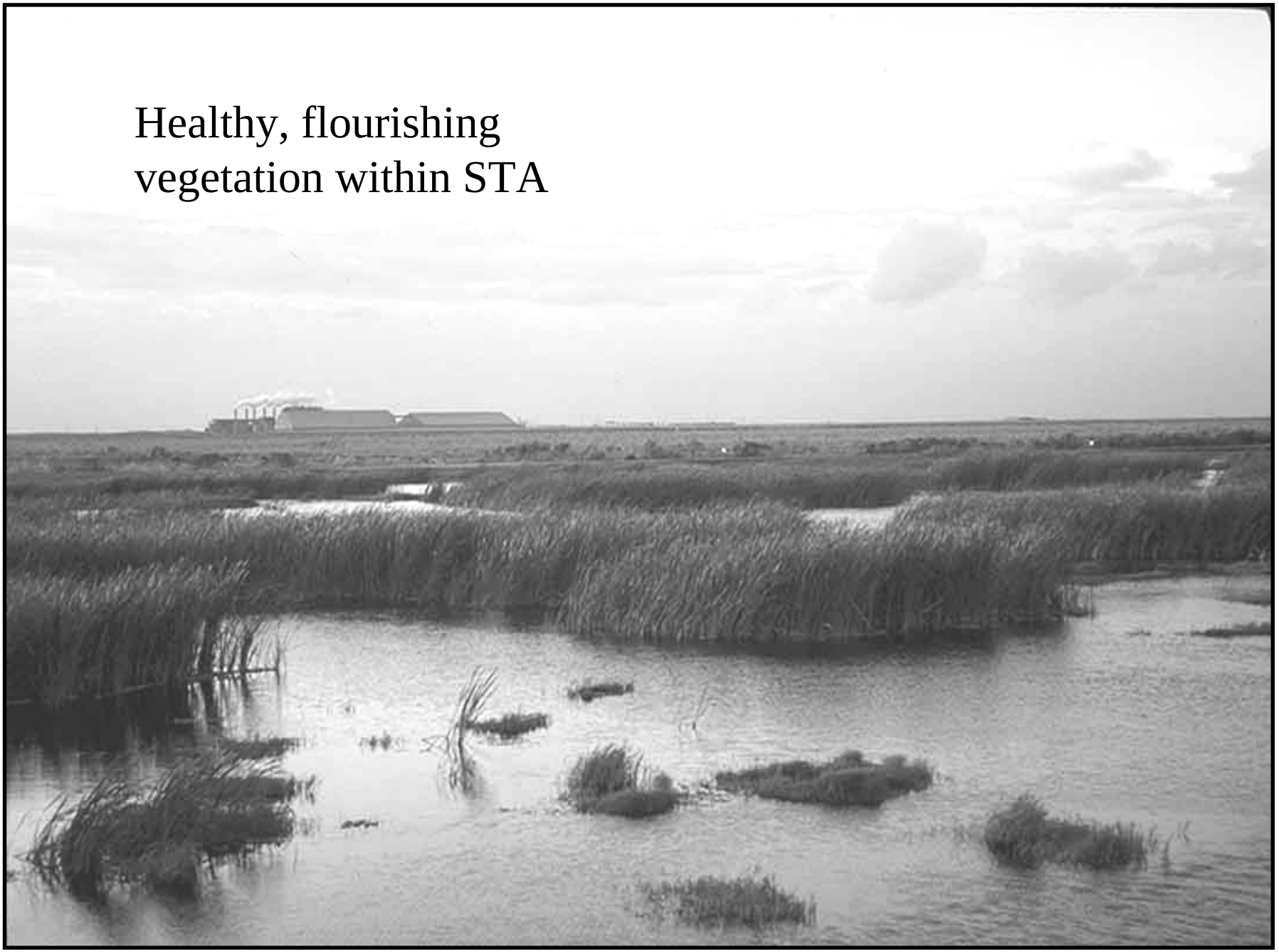
STA-1E	***5350 acres***
STA-3/4	***16,480 acres***



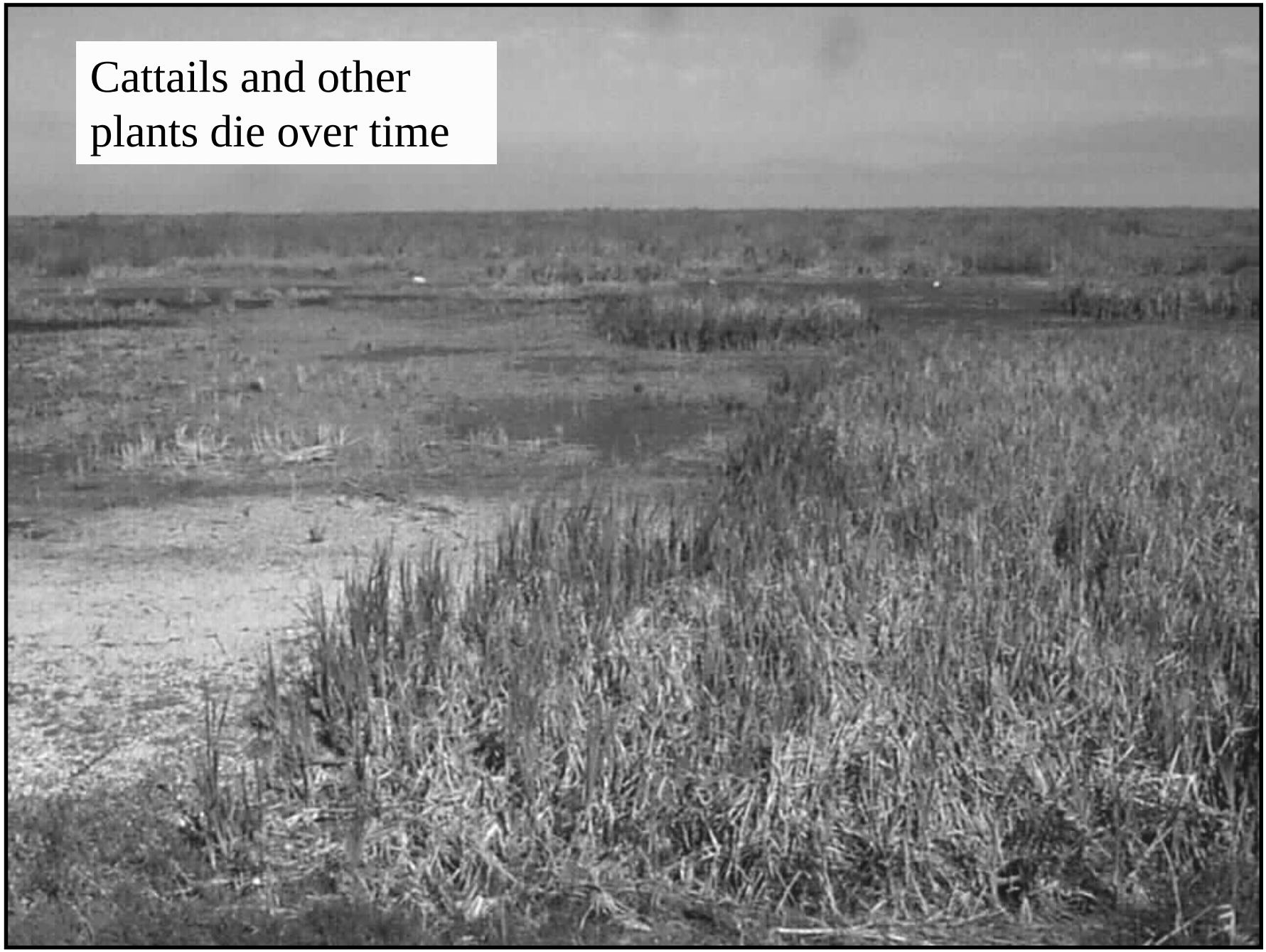
Biological Impacts

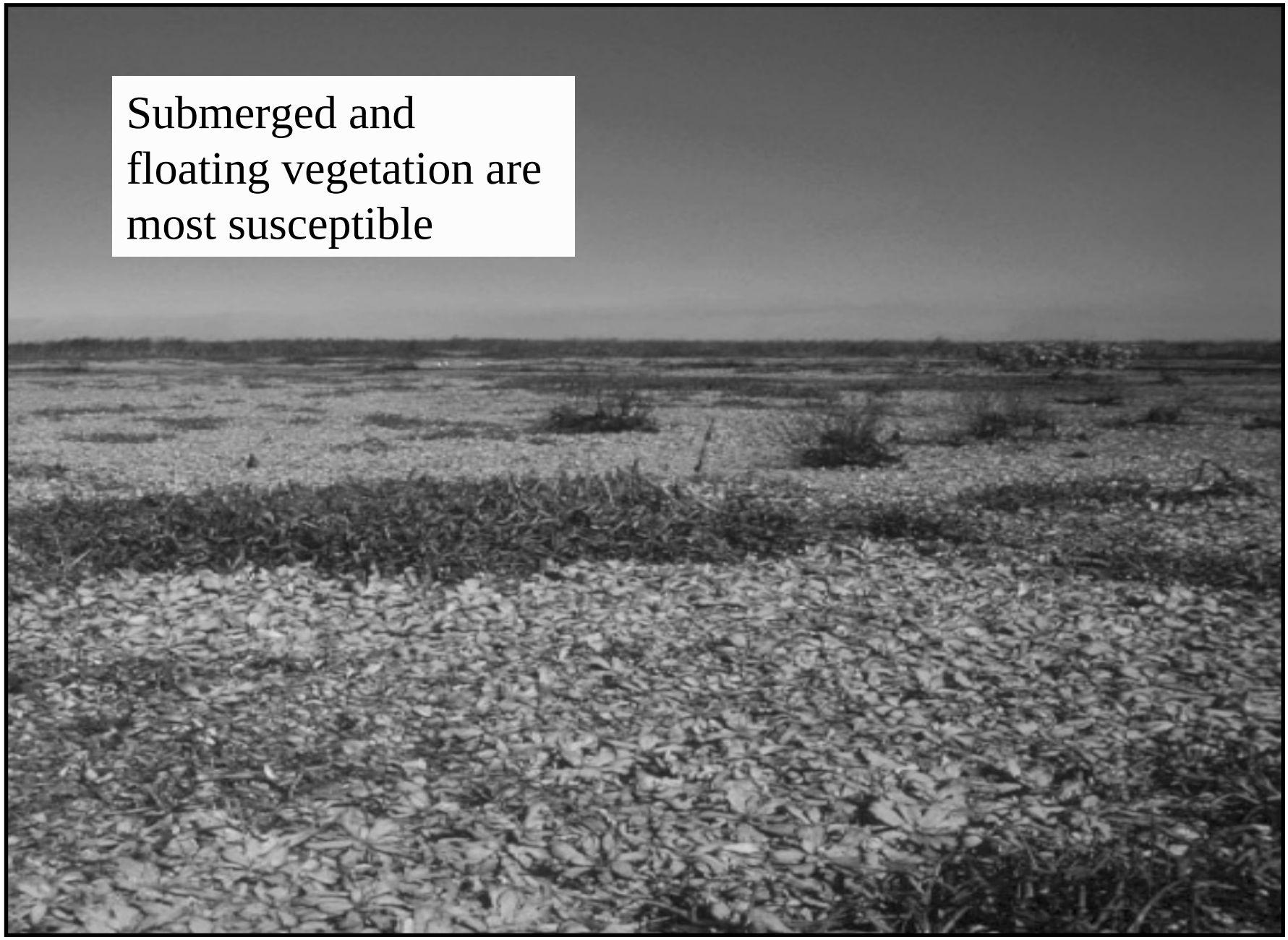
- Vegetation is severely stressed
  - function of depth and duration of drought
  - different species respond differently
- Invasion of upland plants (exotics, etc.)
- Increased probability of muck fires
- When the rains finally come
  - Vegetation may return; could take a year or more
  - Herbicides may be necessary to control undesirables if submerged aquatic vegetation dies

Healthy, flourishing
vegetation within STA




Plants are stressed as
water levels drop


Cattails and other
plants die over time


Submerged and
floating vegetation are
most susceptible

Phosphorus Impacts

- Lost phosphorus removal capability
- Phosphorus export upon rewetting
  - WCA-2A experience: ***>1,000 ppb***
  - 6-15 months to return to net improvement
  - Additional time for optimal (>50ppb) performance
- Bypass of untreated water during retention/regrowth
  - Potential bypass of ~60 tons of phosphorus
  - >***35% of total STA treatment capacity***
- Compliance with permits requires remedial measures
- Settlement Agreement recognizes force majeure

Economic Impacts

- ***Hard to quantify***
- Public investment in phosphorus treatment:
  - (annualize capital costs + O&M) ~ $43 per pound
  - Approximately $5.5 million in bypassed treatment
- Post-drought herbicide applications
  - $140 per acre … estimated $760,000
- Re-stocking costs (admittedly impractical)
  - Approximately $10 million & time
- Unknown factors that can't be estimated:
  - Defending potential legal challenges
  - Impacts downstream in Everglades

Projections of Water Needs (through May)

- Total water lost since January 1:
  - approximately 16,600 acre feet or 6,600 AF/mo
- To meet performance goals of STAs:
  - 27,000 acre feet
- To keep the remaining plants alive:
  - **12,000 acre feet for the next 3 months**
  - average of 4,000 acre feet/month
  - ***This is less than what is needed to meet the performance goals***

Take Home Messages

- STA vegetation is stressed
- Impacts of drought:
  - Potential bypass of 60 tons of phosphorus to Everglades
  - Approx. $6.3 million in lost treatment & herbicide costs
  - Other unquantifiable costs
- It is staff's intention to supply enough water to keep remaining plants alive - 4,000 AF/mo (through May)